

## THE NORTHERN BALD EAGLE IN BRITISH COLUMBIA

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In the spring of 1935 during a six-weeks visit to Graham Island, the largest of the Queen Charlotte group, opportunities to watch the actions of the Northern Bald Eagle (*Haliaeetus leucocephalus alascanus*) occurred almost daily. A report of these observations together with others made elsewhere in British Columbia is presented in the following paper.

The first three localities mentioned are on Graham Island; Departure Bay is on Vancouver Island, and the other localities referred to are in the interior of British Columbia.

At Tl-ell the local population of Bald Eagles was estimated to be twenty individuals comprising five adults and fifteen others of various ages. These frequented the Tl-ell River, which for some miles parallels the sea; the sea beach and, somewhat less commonly, an open wooded area between. None were seen in the muskegs nor in the heavy timber which covers the greater part of the district. It was reported to me that during the autumn Bald Eagles become much more abundant and feed largely on salmon which are then ascending the river on their spawning migration.

At this time, i. e., in the spring, it was indicated that most of their food is taken from the sea beach and from the boulder reefs exposed at low tide. Day after day during full tide periods Bald Eagles could be seen standing in one or another of the spruces on the outer, seaward edge of the spruce forest—once five birds occupied the same tree—on the logs which covered much of the upper beach or on the sand near the water's edge and there they waited motionless until the falling tide uncovered a large expanse of boulder reef. During half tide or low tide these same birds invariably occupied the reef, some standing on the higher boulders, others on the patches of sand between. Very often several birds hunted the extreme outer edge of the boulder area where they could be seen standing in water deep enough to wet their tibial plumes.

Dogfish drifted ashore in considerable numbers; at one time I counted thirteen on about a mile of beach and each of these had been partially eaten by eagles as could be told, in some instances, by the tracks around them. Several times eagles were seen feeding on dogfish and as they tore at the carcass one or more Glaucous-winged Gulls stood motionless a few feet away awaiting their turn at the carcass. On one occasion an eagle so engaged was attended by two Glaucous-winged Gulls and a raven.

A young Bald Eagle carrying a dogfish head in his claws was seen flying from the beach to the spruce trees where he alighted. Later on a large number of dogfish heads and tails were found under these trees where they had been dropped by eagles. Here also were found the feathers of a Pintail, the sternum of an unidentified duck, and the bones of a rabbit, all of which had been exposed to the weather for some months. The item occurring most frequently was crab, broken chelae and carapaceae being found under nearly all the trees along the beach.

One morning it was noticed that since the previous evening a doe deer had washed up on the beach and been nearly all consumed. Standing here and there around the carcass on drift logs and on the sand were eight eagles and three ravens—their immobility indicating repletion—while two Glaucous-winged Gulls pulled at the shreds of meat still adhering to the bones.

When flying along the river eagles sometimes put a flock of American Golden-eyes to flight but I saw no attempt to molest them. It was noted with surprise that Mallards on a small lake near the sea paid no attention to the eagles which sometimes flew over them not more than forty yards above the water, but these same ducks would take flight if I approached closer than 150 yards. Neither did the Trumpeter Swan which frequented this same lake pay any attention to the eagles' presence.

Eagles used the low trees surrounding this lake as resting places and were seen there daily. It was assumed they were attracted to these open woods by the introduced rabbits and Mongolian Pheasants of which there was an abundance. But a diligent search revealed no "kills", and, although I passed through these woods at least once a day for three weeks and each time saw eagles, at no time did I see them actually hunting. This seemed the more remarkable in view of the fact that rabbits nearly always were in view hopping across the open mossy glades. Pheasants were more plentiful in this limited area than in any other district of comparable size in British Columbia according to my observations. It seems doubtful that this species could have increased to such an extent, from the small stock introduced about fifteen years ago, if eagles had preyed upon them consistently. No Sitka Grouse were in these open woods and according to the residents there never had been. This species frequents the semi-open muskegs and the timber adjacent to these areas. I have never seen them in woods of the kind described above either at Tillamook or at other places on Graham Island.

A flock of sheep accompanied by a number of young lambs pastured these woods and frequently in their wanderings loitered and sometimes lay down within a few yards of trees in which eagles were perched. The eagles paid no attention to the lambs. For the past five years two settlers have run flocks of sheep in this area without suffering any losses through eagles.

During a stay of two weeks on the Sangan River I saw only two Bald Eagles, an adult and an immature bird. Both were seen daily, sometimes flying up the open lane which marked the course of the Sangan through the forest, or else on Chown Slough or on the sea beach at the river's mouth. The sea bottom here is entirely sand and gravel so that small sea animals are not abundant as is the case where low tides expose rocks and boulders. Consequently little food other than carrion and, in the fall, salmon is available for eagles.

Dr. Dunn, a resident on the Sangan River, informed me that usually three broods of American Mergansers are hatched on the river and that Bald Eagles reduce the number of young to three or four in a brood during the course of the summer.

An experience on this river suggests that mergansers recognize the Bald Eagle as an enemy. I was concealed in a dense thicket of salal on the edge of a steep cut bank along the river and looking down upon nine yearling American Mergansers that were in possession of a gravel bar almost directly below me and not more than fifty feet away. The ducks stood or lay in various positions of relaxation some with necks turned and bill buried in the feathers of the back. They were close enough so that I could see sexual differences in bill coloration and individual variation in the tint of their under parts. On either side of the narrow river giant spruces towered and in looking upward, as if from the bottom of a canyon, one saw only a narrow strip of blue sky. The water slipped past the edge of the gravel bar with a murmurous hum, otherwise the silence was complete. Suddenly a Bald Eagle—a shadow passing across the strip of blue sky—whistled and simultaneously, or so it seemed, each merganser became tense, alert and ready for instant flight. Some continued to stand where they were, others slipped into the water to revolve slowly with the current. The eagle cry was not repeated, neither did the bird reappear across the strip of blue, and in a few minutes all the mergansers again were relaxed on the gravel bar.

At the head of Massett Inlet about one hundred feet from the edge of the shore line forest between McClinton Creek and Bald Eagle Creek is a large Bald Eagle's nest fifty feet from the top of a heavily



FIG. 9. A Boulder Reef, at low tide, on Graham Island, B. C. A feeding ground for the Northern Bald Eagle.



FIG. 10. A Mud Flat, at low tide, in McClenton Bay, B. C., showing "dolphins".

foliated, forked Sitka spruce, estimated to be 150 feet in height. During the last two weeks of April the female evidently was incubating eggs but could not be seen on the nest because of the intervening foliage which concealed its top. The male usually occupied a tall spruce near the end of a point which commanded a view up and down McClinton Bay. The two birds were seen together only once when they stood in a dead spruce one hundred yards or so farther back in the forest from the nesting tree. These eagles, observed almost daily for two weeks, were not seen hunting waterfowl. Mr. J. Stannard, of the Pacific Biological Field Station, at McClinton Creek, told me that the nest had been occupied for three years at least. Mr. Stannard also stated that he had seen Bald Eagles capturing young American Mergansers eventually taking all but one of a brood. This was in mid-summer when the female merganser during high daylight tides led her brood from McClinton Creek out on the bay over the submerged tide flats, a habit of this duck when nesting near the mouth of a tidal stream.

At McClinton Creek the tide flat is the Bald Eagles' chief hunting ground and their lookouts are one or another of the six "dolphins" which are conspicuous objects on the bay and directly in front of the nest. These are tall piles driven into the flats for the purpose of mooring log booms but long in disuse with grass growing on their tops and barnacle-encrusted for a quarter of their height. From these perches, so Mr. Stannard stated, the eagles harry the young flightless mergansers.

The few Bald Eagles which frequent Departure Bay and vicinity during the winter months constantly are in sight of great flocks of gulls which have been attracted by the spawning of herring. For the most part the eagles completely ignore the presence of the gulls as do the gulls that of the eagles. This usually is so even at the time when gulls are feeding upon stranded herring spawn a short distance from a perching eagle.

But one incident contrary to this general behavior came under observation. In this case an adult Bald Eagle circled over a flock comprising one thousand or more gulls, which had congregated on a gravel bar at the water's edge, and put them to flight. Like a snow-storm of wings they milled about conspicuous against a dark background of forest while the eagle charged again and again into the thick of the flock. Possibly it was not intent on securing a meal and these actions were in the nature of play for later the eagle came flying, empty-clawed, along the shore.



FIG. 11. A resting place for Northern Bald Eagles, Tl-ell, B. C., with a Trumpeter Swan in flight.



FIG. 12. Nest and one young of the Northern Bald Eagle, Horse Lake, B. C.

No instances of Bald Eagles attacking diving ducks were noted at Departure Bay, but farther north at various places on Vancouver Island this habit came under observation. The method of hunting is to follow closely the under-water progress of a duck which seeks to escape the eagle by diving. Each time the duck emerges the eagle swoops down to the water so that dive follows dive in quick succession until finally the prey becomes exhausted and is captured. Some, but not all, of the ducks taken in this manner are incapable of flight as the result of gunshot wounds or other injuries. No instances of a Bald Eagle capturing an uninjured surface-feeding duck has come to my attention.

On the large lakes in southern British Columbia which remain open all winter it is common to see Bald Eagles harassing the Coots which winter there. When attacked the Coots come together in a close flock and move rapidly across the water with necks outstretched; they do not dive. The pursuing eagle planes downward but checks its flight when a few feet above the mass of birds, ascends, circles over the flock, then again hurls downward with tremendous force that again is suddenly braked. This maneuver may be repeated a dozen times without a capture being made and each time, terrified by the eagle's nearness, the Coots surge across the water. Apparently the eagle rarely takes a bird from the midst of the flock, although it would seem an easy thing to do, but pursues directly any straggler, and almost invariably captures it. On the other hand I have seen an eagle swoop down toward a compact flock twenty times or more and finally fly away without having captured a bird.

An example of different behavior was observed at Elk Lake, near Victoria, B. C., on January 8, 1926. One end of this small lake, which is a game reserve, was free of ice and crowded with Coots, Mallards, Baldpates, and a number of Red-breasted Mergansers. While I was watching this throng of birds several flocks of ducks on the outer edge of the gathering rose suddenly and circled toward me, Mallards quacking and Baldpates whistling. Immediately afterward an adult Bald Eagle appeared, passed swiftly over the flying ducks, swung up wind and dropped into the midst of a flock of Coots. All dived except one, which perhaps was a sick bird; this one the eagle lifted from the water and carried to a fir tree on the shore. He had hardly reached his destination before most of the ducks were again on the water.

Western Grebes also are taken as has been determined by the finding of their remains under trees in which eagles perch. The

Western Grebe is normally a vigorous and tireless diver, but each fall a number become weakened and emaciated and finally die from some complaint that apparently has not been diagnosed. It seems probable that it is these individuals which are taken by eagles.

At Horse Lake two pairs of Bald Eagles have eyries less than a mile apart near the east end of the lake. Until recently my knowledge of these birds was limited to occasional glimpses of them in flight and, on one occasion, the sight of two adults tearing at the carcass of a large fish which had drifted into the shallows.

Mr. Sigurd Larum, resident at Horse Lake since 1911, and a close observer of animal life, showed me the location of these nests and mentioned that one had been occupied each year from at least 1911 until 1931 when the tree holding it was blown down in a storm. The following year another nest was built about one hundred yards distant. In both cases the site was an old Douglas fir growing in thick woods on a mountain slope about one-quarter mile from the lake shore.

The second eyrie also was in a Douglas fir amongst more open wood and in clear view from the lake 200 yards below. Mr. Larum had first noticed this nest about 1931.

In August, 1936, I visited both nests in order to hunt for food remains in their vicinity. At this time one bird of the year hunted in the general neighborhood but the four adults, and whatever other young they raised, had moved elsewhere.

No remains of food were found near the first nest, i. e., the one farthest back from the lake. On the ground below the other nesting tree and under two Douglas firs close by were the following items: (1) headless and partly decomposed body of a half-grown Golden-eye, probably *Clangula islandica*; (2) skeleton of a Ruffed Grouse; (3) bones of one or more suckers; (4) tails and bones of two or more Kamloops trout.

This nest was photographed and while focusing the camera I remarked to my companion that it was unfortunate none of the eagles were at home. A moment later we heard an unmistakable whistle, a harsh rustle of wings, then a young Bald Eagle alighted on a bare branch directly over the nest!

The foregoing illustrates how local conditions and time of year modify the food habits of the Bald Eagle. At Tl-ell in the spring it is about as predatory as a Turkey Vulture; elsewhere it may prey upon diving ducks, coots, grebes, grouse, fishes, or carrion depending on the availability of the various foods.

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